

Action Item #4 Contract for Professional Services – DLZ Engineers

The Westfield Public Works Department is recommending that the Board of Public Works and Safety consider the following Contract for Professional Services (See Exhibit C) for the engineering and design services for the intersection improvement of 161st Street and Carey Road Round-a-bout for approval.

This Contract for Professional Services will consist of engineering services provided by the consultant as directed by the City of Westfield Public Works Department.

The Public Works Department obtained two (2) other quotes for these services from engineering firms and compared these hourly costs associated with the services.

The City of Westfield Administration Director of Enterprise has reviewed this agreement and recommends that the Department of Public Works enter into these services with DLZ Engineers.

Therefore, it is the recommendation of the Public Works Department for the Board to propose a motion to approve the Contract for Professional Services Agreement with DLZ and authorize the Director of the Public Works Department to execute the agreement on behalf of the Board of Public Works and Safety.

"EXHIBIT C"



December 30, 2008

Mr. Neil VanTrees, P.E.
Westfield Public Works
2706 E. 171st Street
Westfield, IN 46074

Re: Revised Scope of Services
Roundabout Intersection Design
161st Street and Carey Road

Dear Mr. VanTrees:

DLZ Indiana, LLC (DLZ) is transmitting our fee proposal for professional engineering services for the proposed roundabout design at the intersection of 161st Street and Carey Road.

In consideration for the above scope of services, DLZ submits the following revised lump sum fees:

Survey	\$14,700.00
Location Route Survey Plat	\$8,900.00
Roadway Design (incl. MOT, drainage and detention)	\$81,200.00
Signing and Pavement Marking Design	\$4,600.00
Lighting Design	\$8,500.00
Watermain Design	\$14,000.00
Landscape Design	\$7,900.00
Right-of-Way Engineering	\$9,100.00
Bidding Services	<u>\$6,800.00</u>
Total:	\$155,700.00

DLZ also has provided a fee for the additional work associated with reconstructing 161st Street east of the intersection to remove the stopping sight distance deficiency due to the crest vertical curve. This fee is \$4,600, which includes the additional effort for developing a plan and profile sheet and cross section sheets. A budgetary number for providing construction services on a part time basis as outlined in the City's Scope of Services document has also been developed. This fee is estimated to be \$45,000.

Also included in this fee proposal are costs to perform Right-of-Way services on a per parcel basis for up to 5 parcels. These services are provided by DLZ and O. R. Colan. The fees are as follows:

Title Work w/20 yr commitment (O. R. Colan)	\$240
Last Deed of Record update (O. R. Colan)	\$75
Appraisal Problem Analysis	\$200
Appraisals:	



ENGINEERS • ARCHITECTS • SCIENTISTS
PLANNERS • SURVEYORS

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Waiver Valuation (O. R. Colan)	\$350
Value Finding (O. R. Colan)	\$1,200
Short Form (O. R. Colan)	\$2,125
Appraisal Reviews:	
Waiver Valuation (O. R. Colan)	\$155
Value Finding (O. R. Colan)	\$535
Short Form (O. R. Colan)	\$955
Negotiations – Partial Take (O. R. Colan)	\$1,125
Right-of-Way Staking (DLZ)	\$500
Transfer Documents (O. R. Colan)	\$350
Coordination (DLZ)	\$500
Supervision (O. R. Colan)	\$450

If you have any questions or require any additional information regarding these revised fees, please do not hesitate to contact this office at 633-4120.

Very truly yours,

DLZ INDIANA, LLC

Mark C. Jacob
Vice President/Principal in Charge

Bruce Fraser, PE
Transportation Division Manager

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DESCRIPTION OF THE PROJECT

The project is located in the City of Westfield at the intersection of 161st Street and Carey Road. DLZ has been to the project site and spoken with City officials to better understand the overall project scope. Currently, both roadways are single lane facilities utilizing stop signs for stop control. The adjacent properties are the Radiant Christian Life Church on the northwest corner, a vacant residential lot owned by Estridge on the southwest corner, Bridgewater on the southeast corner and Bridgewater development on the northeast corner.

Existing overhead utilities are present on the west side of Carey Road and the north side of 161st Street. There are underground gas, water, storm, sanitary and telecommunication (fiber optic) facilities present throughout the project area.

During our site visit we noticed a steady volume of vehicular traffic, along with tractor trailers, throughout the intersection. There currently exists a multi-use path on the east side of Carey Road and on both the north and south sides of 161st Street east of the intersection. We also observed what could be limited sight distances along 161st Street east of the Carey Road intersection.

Based on our site visit, meetings with City staff and the attached City's Scope of Services, the following represents DLZ's understanding of the scope of work:

SCOPE OF WORK

Field Survey

DLZ will begin the project by performing a field survey of the entire project area. The survey lengths will include approximately additional 200 feet of field survey beyond the project lengths listed in the City's scope of services. DLZ will establish necessary random horizontal control using Global Positioning Systems (GPS) or conventional optical traversing methods. Horizontal control values shall be initially based upon the Indiana State Plane Coordinate system, East Zone, North American Datum 1983. Vertical control is to be established based upon North American Vertical Datum 1988. DLZ will establish one vertical control base station by static GPS/OPUS methods while constraining to and checking into at least two nearby available NGS stations. Additional vertical control points (random control stations and temporary benchmarks) will be established by conventional differential leveling techniques.

Topography shall be electronically data collected and processed in Eagle Point format. Road cross-sections shall be taken at 50-foot intervals and shall extend no less than 50 feet either side of the existing/proposed rights of way of both 161st Street and Carey Road.

Underground utilities, which are marked in the field by the respective utility or by its representative or contractor, that fall within the survey limits, shall be located. All above ground utilities and their appurtenances that fall within the survey limits shall be located and identified.

Existing drainage/sewer structures found within the survey limits shall be located and sized and connected to key offsite structures if they exist.

Other topographic features that fall within the survey limits shall be located and may include but not be limited to trees over 8 inches (edge of tree-lines in heavily wooded areas), significant landscaping and fences, driveways and walks (along with surface types), buildings and/or dwellings, roadway surface types and utility installations if at surface or otherwise marked.

Survey alignment for both 161st Street and Carey Road shall be established from the existing pavement location in the absence of predefined alignments, which are recoverable, provided by the Westfield City Engineer or the Hamilton County Engineer or County Surveyor.

Fee parcel lines establishing this survey shall be based upon record documents found in the Hamilton County Recorder's Office and/or other public sources, i.e. GIS.

DLZ will establish granted Right of Way if documented with the Hamilton County Surveyor's Office by official County Commissioner's record or other Hamilton County Officials' record with legal authority to establish Rights of Way, or from deeds or right of way grants provided to DLZ by the Westfield City Engineer.

DLZ will make every effort to recover and/or re-establish needed section corners as defined in Title 865 I.A.C. 1-12 (Rule 12). DLZ believes it may be necessary to recover or re-establish as many as 5 section corners which control the location of the affected fee parcels. Many of these corners are located as far as one half mile from the site.

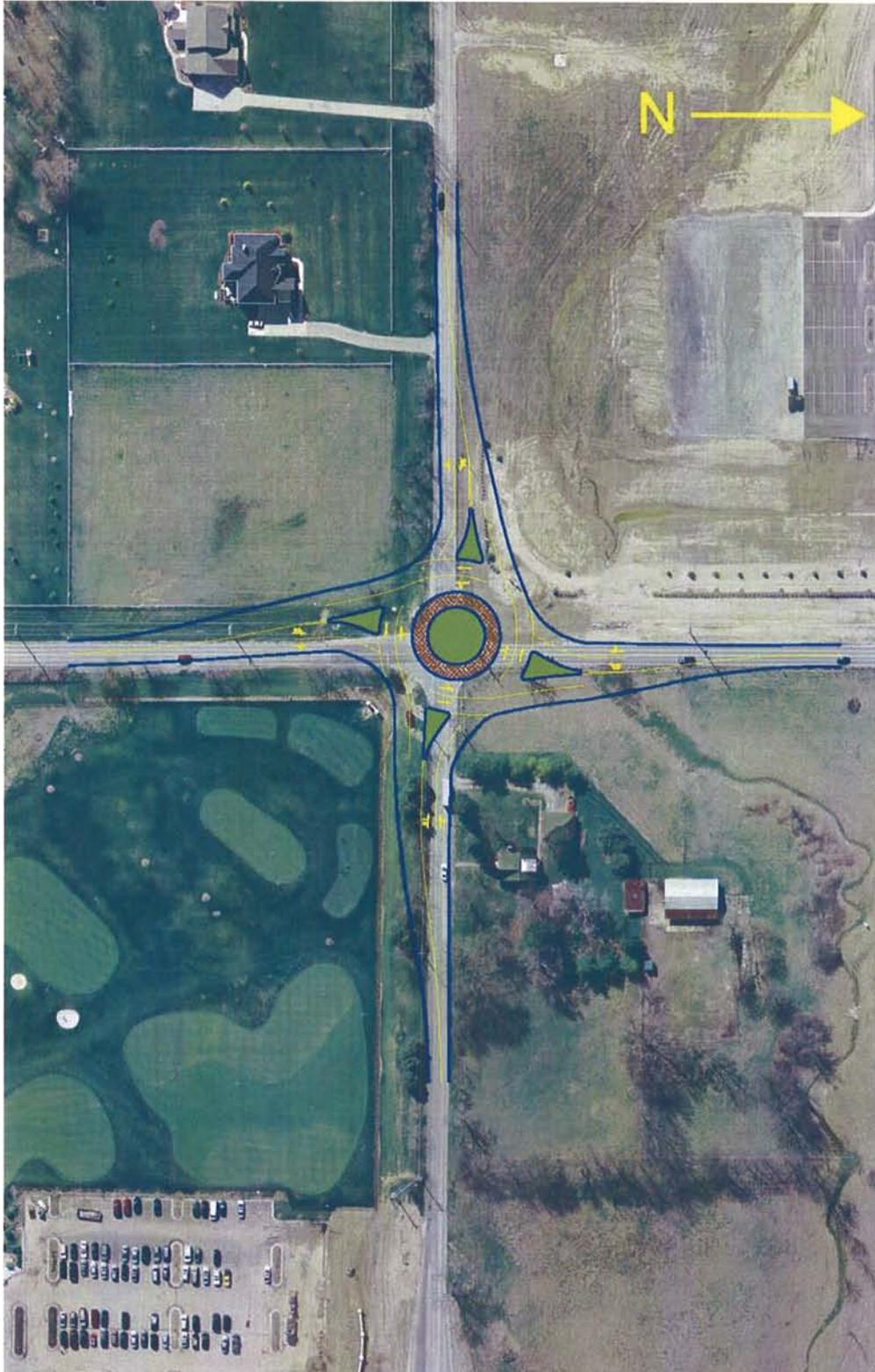
DLZ will prepare a Location Control Route Survey Plat for recordation in accordance with Title 865 I.A.C. 1-12 (Rule 12). This plat shall provide the necessary alignment, section corner and other title information needed for the preparation of Right of Way Parcel Plats and Descriptions. The plat shall display alignment monumentation and reference ties to those monuments as well as coordinate values for random control and alignment points. DLZ shall record this plat in the Hamilton County Recorder's Office.

Roundabout Design

Based upon the previous engineering study performed for the City at this intersection, it was determined that a dual lane modern roundabout is to be constructed. The City also indicated it desires to minimize and/or eliminate the impacts on the northeast and southeast corners of this intersection. Therefore, DLZ will investigate locating the roundabout design west of Carey Road and possibly to the north of 161st Street. This is due to the large open area on the church property. DLZ will utilize RODEL for capacity analysis and to determine the lane configurations of the roundabouts. All design shall be performed in US customary units and in Auto Cad format utilizing Eaglepoint.

After reviewing the roundabout concept drawing which was provided by the City, we noticed that there were several design elements of the concept drawing that were not consistent with commonly accepted multi-lane roundabout design practice and guidance. Most importantly, the geometry and alignment of the two lane entries exhibit what is commonly called "entry path overlap." This is a situation where the entry lanes at the yield line do not line up with receiving lanes in the circulating road. Specifically, the inside entering lane vehicle trajectory is pointed into the central island, and the outside entering lane is directed towards the inside circulating lane. Path overlap can result in reduced capacity or increased crashes. Also, there are relatively tight exit radii shown on all four of the exits. This creates very small entry angles (i.e., the angle at which the entering stream of traffic crosses the exiting stream of traffic) and is undesirable since it can contribute to entry-circulating crashes. Additionally, the splitter islands shown in the concept drawing most likely do not meet applicable requirements for minimum width at the pedestrian crossing locations. Beyond these items, it appears that the inscribed circle diameter (ICD) can be reduced in size while still providing adequate speed control. Lastly, it appears that the current roundabout may not provide adequate entry path curvature (i.e., curvature prior to the yield line for approaching vehicles) in order to meet relevant standards in the FHWA roundabout guide (i.e., the maximum allowable R1 value).

The issues described in the paragraph above will affect the geometric layout of the roundabout which in turn will directly affect right-of-way needs and possibly cost. In order to demonstrate what we believe are more realistic right-of-way needs, DLZ has prepared a conceptual drawing that shows the geometry we would recommend be utilized. This drawing is shown on the next page. Once the geometric design begins, we can move the center of the roundabout around (to the northwest) to reduce and or eliminate the impacts to the golf course property. Based on this geometric layout, we estimate that the lengths of work required for each leg are approximately 400 feet.



Comment [h1]:

After the Rodel analysis and field survey/basemap have been completed, DLZ will proceed with preparation of the Preliminary Design Plans. As mentioned previously, DLZ will investigate locating the proposed roundabout in the northwest quadrant of the existing intersection to avoid/minimize impacts to the Bridgewater golf course and residential development. The proposed facility is to be constructed as a two-lane roundabout; therefore requiring the widening of the existing two lane roadways to four lane divided sections. This will also impact our analysis on the location of the roundabout.

The design plans will include 10' multi-use paths along each leg of the intersection that do not already have one. All paths will have proper ADA compliant ramps and access throughout the proposed roundabout project.

As part of the preliminary design effort, DLZ will investigate the crest vertical curve along 161st Street to determine if there is a deficient stopping sight distance and if the projects limits need to be extended to the east up to 200 feet to correct this problem. If it is determined that there is a deficient sight distance, DLZ will prepare plans to correct this design element (this fee is presented as a separate design fee to only be authorized by the City of Westfield).

This design effort will include preparation of typical sections, plan and profile sheets, cross sections, a detour plan, approach and drive details, roundabout pavement and island details, lighting, signing and pavement marking, drainage, water main relocation and preliminary landscape design.

As mentioned previously, there are numerous utilities, both overhead and underground, that must be addressed to assure that construction moves in an expeditious manner. Consequently utility coordination is vital in all aspects from survey, through design and into construction. To allow for the construction of the roadways to be completed during non school months, all utilities must be cleared prior to construction. This project will impact the overhead utilities along the west side of Carey Road and on both the north and south sides of 161st Street. It is important that the proposed design be coordinated with the electric company as soon as possible so that the relocation of their facilities can be completed prior to roadway construction. DLZ will provide the utility companies with the roundabout design plans so that they may prepare relocation plans for their respective facilities.

Drainage is also a key element to this project. Due to the existing conditions, detention is required to safely collect the storm runoff and not adversely impact the existing storm system. DLZ will investigate various methods to detain the storm runoff. At this time, DLZ anticipates that underground detention is the most likely design alternative since this will minimize the adjacent property impacts. Design calculations will meet the Hamilton County detention

ordinance. DLZ will also investigate protection for the receiving waterway, which we presume to be the open ditch along the north side of the golf course. Erosion control and Best Management Practices (BMP's) are to also be addressed by DLZ as well as preparing the Rule 5 permit. We will investigate all types of BMP designs from manufactured systems to vegetated slope/ditch treatments.

The landscaping element of this project has various phases. As per the City's Scope of Services, plantings are to be investigated as part of the BMP design. DLZ will prepare three alternative schematic plans to be presented to the City. These schematics will entail only hand drawn sketches of the landscaping alternatives. Once a preferred alternative is selected, DLZ will then prepare a Supplemental Agreement to perform the final landscape design.

Lighting design is also an important element for roundabout safety. This design effort will include illuminating all crosswalks along with the roundabout itself. In addition to the roundabout and crosswalks, the approach roadways are to be lighted as per the Roundabout Lighting Design Guide. DLZ will prepare the lighting plans in accordance with the scope of services provided by the City of Westfield (see Appendix A). DLZ will perform all lighting design calculations, details, plans and specifications to fit the pre-approved Westfield master plan.

The watermain relocation will consist of approximately 1,300 linear feet along both 161st Street and Carey Road in accordance with the City of Westfield's Scope of Services (see Appendix A). DLZ will coordinate with the City to develop the new watermain and abandon the existing watermain. As part of the design effort, we will identify and resolve any conflicts with existing underground utilities and proposed storm facilities. DLZ will also prepare and submit the IDEM NOI permit.

Following the preliminary plan submittal, the City of Westfield will hold a public meeting to present the project to the community. DLZ will prepare exhibits for this meeting and attend the meeting as well.

The project is to be designed in English units and in accordance with the following references, policies and guidelines:

- FHWA Roundabouts: An information Guide; FHWA-RD-00-67, June 2000,
- A Policy on Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials,
- Roadside Design Guide, American Association of State Highway and Transportation

Officials.

- Standard Specifications, Indiana Department of Transportation.
- Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD).

Right-of-Way Services

Right-of-Way services are also included in this fee proposal on a per parcel basis for up to 5 parcels. Right-of-Way services that may be performed are listed in the City of Westfield's Scope of Services (see Appendix A). DLZ shall prepare legal descriptions and right-of-way parcel plats for necessary fee and temporary parcels to be used in the acquisition of right-of-way in accordance with the City's Right of Way Engineering standards.

DELIVERABLES

DLZ will submit preliminary plans, public information meeting exhibits and final plans as itemized in the Scope of Services (see Appendix A). DLZ will submit one set of construction bid documents. DLZ will also submit electronic files in PDF and AutoCAD 2008 format.

MEETINGS

DLZ will attend up to 10 meetings throughout the design process. These meetings are broken down as follows:

- Four Client meetings
- Two Stakeholder meetings
- One public meeting
- Three Hamilton County Surveyor Office meetings

SCHEDULE

Attached is a project schedule for the design and R/W acquisition services. Based upon our meeting held at your office on December 12, 2008, it is the City's desire to have the design completed in 120 days. Construction is anticipated to be in 2010, but have the flexibility to begin construction in 2009.

The project schedule does not include delays incurred due to utility relocations, right of way acquisitions and other instances outside of DLZ's control.

**CITY OF WESTFIELD
SCOPE OF SERVICES**

Appendix A

SCOPE OF SERVICES
WESTFIELD, INDIANA
161ST STREET AND CAREY ROAD

PROJECT PURPOSE

The purpose of this project is to construct a modern roundabout at the intersection of 161st Street and Carey Road. This project will improve the capacity and safety at the intersection.

PROJECT LIMITS

The project will extend approximately 700 feet north, 700 feet south, 650 feet east, and 550 feet west from the intersection of 161st Street and Carey Road.

PROJECT TIMELINE

The project will be advertised on March 2, 2009. Construction is anticipated to begin June 8, 2009 to avoid conflicts with the school system. All permits and right of way shall be secured before the March 2 bid. If permits can not be secured before bid, majority of substantial comments shall be addressed and reflected in the bid set of plans. If R/W is not secured, formal offer must be made on or before January 5, 2009. All permits and right of way shall be secured prior to June 8, 2009 start time.

I. SURVEY SERVICES

CONSULTANT will perform the surveying and base mapping tasks necessary for the design of the project. The base mapping will be produced using GPS and conventional electronic data collection methods.

Dual-Frequency GPS receivers will be utilized to establish horizontal and vertical control throughout the project using the Indiana State Plane Coordinate System (East Zone) on the NAD83 and NAVD88 datum. This will also be tied to the Hamilton County GIS network.

Surveying services will be provided to develop topographic and planimetric base mapping for the design of the Project, extending 700 feet east to the first Bridgewater driveway, 600 feet west of the project, and 800 feet north and south from the intersection.

A. DESIGN SURVEY

The ground survey will include both planimetric features such as buildings, roads, water and drainage features, bridges, culverts, fences, guard rails, driveways, parking lots, poles, sidewalks, individual trees, bushes, walls, manholes, catch basins, fire hydrants; underground utility features will be located within the project limits such as electrical power poles and lines, fiber optic, gas lines, phone lines, and cable TV as marked by Indiana Underground Plant Protection Service (IUPPS) or as observed by physical evidence. Additional spot elevations will be gathered as needed for the development of a digital terrain model and contours.

B. PROPERTY LINES AND LOCATION CONTROL ROUTE SURVEY

This will include performing research at the offices of the Hamilton County Assessor, Auditor, and Recorder to determine ownership information and deeds of last record. From this

information, property corners and public land survey corners will be searched for and located where available. The results of this research and field work will be used to establish deed lines and existing rights of way of record. A Location Control Route Survey Plat will be produced in accordance with Indiana Administrative Code Title 865, Article 1, Rule 12 as it pertains to route surveys. The Location Control Route Survey Plat will be recorded in the office of the Hamilton County Recorder.

II. DESIGN SERVICES

A. ROADWAY DESIGN

1. **Roadway Design: 161ST Street and Carey Road** – The intersection at 161st Street and Carey Road will be designed as a two-lane urban roundabout. All approaches to the roundabout will be designed to accommodate future 4-lane divided roadways with minimum tapers to match the existing 2-lane roadway conditions. In order to reduce the roundabout approach speeds to acceptable levels, it may be necessary to shift the roadway alignments from their existing centerlines. If feasible the most impacted corner shall be the northwest corner. The roundabout will be designed to accommodate a WB-65 and the City's ladder fire truck. The City will provide letter truck specifications..

Multi-Use paths will be designed on the northwest, southwest, and northeast corners of the intersection and extend to the project limits. The existing Multi-Use path on the southeast corner will be designed to tie into the proposed roundabout. In order to ensure that the corridor is accessible to all pedestrians, the design team will locate and design ADA accessible ramps at all cross walks.

The stopping sight distance of the existing crest vertical curve along 161st Street, just east of Carey Road, will be checked to see if it meets the requirements for a roadway design speed of 40 mph. If current facilities do not meet these requirements, the limits of construction along 161st Street will be extended to correct the stopping sight distance.

Services to support the project described by the following:

- a. **Signing and Pavement Marking Design**-The pavement markings at the cross walks shall be inlaid pre-formed thermoplastic. All other pavement markings shall be designed with thermoplastic.
- b. **Maintenance of Traffic**-The intersection will be designed using road closures and detours.
- c. **Pavement Design**- The pavement at the roundabout will be designed for asphalt. Under drains shall be designed for the project.
- d. **Drainage Design**- The CONSULTANT shall design drainage facilities to safely handle storm runoff. The design shall adequately address runoff control, safety, functionality, erosion mitigation, and ease of maintenance. The CONSULTANT shall comply with the National Pollution Discharge Elimination System (NPDES) General Storm Water Discharge Permit and the Hamilton County Surveyors Office Drainage Permit for regulated drains. Detention and release rate requirements per Hamilton County will apply. The CONSULTANT will investigate drainage outlets within 500' of the project limits.

- e. **Traffic Analysis-Using Rodel Software or other acceptable roundabout traffic analysis tool.** Traffic shall be analyzed for both the current year (2008) and the design year 20 scenario. Traffic volumes and growth rates will be provided by CITY. CONSULTANT will provide the findings of all traffic analysis to the City.
2. **Design Standards** - The design will be performed using current accepted industry standards of practices from the American Association of State Highway and Transportation Officials (AASHTO), Federal Highway Administration (FHWA), Indiana Department of Transportation (INDOT), at the time of this contract execution.

The Roundabout design will follow the Roundabouts: An Information Guide; FHWA-RD-00-67, June 2000.

In the event of a conflict among the standards set forth above relating to roadways and drainage, the order of precedence shall be as set forth below, unless otherwise specified by the OWNER:

- City of Westfield *Construction Standards and Specifications-October 2006*
- City of Westfield *Stormwater Manual*
- INDOT *Indiana Design Manual-English*
- FHWA *Roundabouts: An Information Guide; FHWA-RD-00-67, June 2000*
- AASHTO *A Policy on Geometric Design of Highways and Streets*

B. LANDSCAPE AND LIGHTING DESIGN

1. **Landscape Design**- The landscape design for the roundabout at 161st Street will be designed to utilize stormwater BMP plantings where possible. Initial research and design development will take place and the findings and recommendations will be presented to the City staff. Upon selection of a BMP alternative for the roundabout, the landscape architecture team will proceed create a minimum of three (3) landscape schematics for selection by the City. Each schematic will include an opinion of probable cost. Upon selection of preferred landscape design, the CONSULTANT will perform the final design for the plantings at the intersection under a supplemental agreement. The team will prepare a series of planting plans detailing the types and quantities of all plants, along with detail instructions on planting and maintenance. In addition, decorative pavement will be design and detailed for use at the intersection as described in the Westfield Corridors Master Plan. Irrigation is not planned but 4" conduits will be shown on plans for future crossings.
2. **Lighting Design**- The roundabout , including all crosswalks will be illuminated. Illumination levels will conform to IES (Illumination Engineering Society) Standards, including the IESNA Roundabout Lighting Design Guide, with a 1 foot-candle average over the roadway surface and a 3:1 Average to Minimum ratio over the roadway surface. CONSULTANT will perform point-by-point lighting calculations to determine the quantity and location of lighting fixtures and lighting poles required.

CONSULTANT will provide all necessary electrical construction plans, details, and specifications. The Service Point and concrete pole base foundation will follow INDOT standards. CONSULTANT will select the pole base foundation necessary to withstand the wind velocity of the fixture/pole projected area (EPA). The Service Point will include an integral photocell, contactor for lighting control, and panel board. The fixtures and

poles will be owned and maintained by the City of Westfield and will not be leased from the Electric Utility, Duke Energy. CONSULTANT will coordinate with Duke to provide metering and electrical service to the service point.

CONSULTANT will specify lighting accessories around the Westfield pre-approved master plan. Aluminum lighting poles will be tapered, with a black, powder coat finish, with custom banner mounting accessories, and manufactured by Valmont. Poles will have an aluminum ornamental pole base (Valmont Contour Series) with a hand hole, and matching finish. Aluminum pole arms will be a single ornamental curved arm, 8'0" reach, with an ornamental tenon-adapter, and a matching finish. Multiple pole heights should be investigated to obtain the most cost efficient solution. The minimum pole/arm height will be 24'-0".

Lighting fixtures will be tenon-mounted, ornamental, teardrop shape, with cutoff optics, glass refractor lens, matching finish to poles, and TF7 series manufactured by Hadco. Lamps will be 250-400 Watt, high pressure sodium. Ballasts will be magnetic, high power factor. Other lighting options will be considered if they are cost effective.

Provisions for additional lighting and power such as decorative lighting, landscape lighting, signage lighting, or convenience power receptacles will not be provided for this roundabout. Provisions for power receptacles on the poles for Holiday lights will be provided. A conduit sleeve with pull-string will be installed from the service point to a future illuminated gateway lantern light/marker located in the center of the roundabout.

C. WATER MAIN DESIGN

1. **Water Main Design: 161st Street & Carey Road**-The CONSULTANT shall provide design engineering services for approximately 1300 feet of water main located along the West Side of Carey Road (approximately 800 feet South of the intersection) and the South Side of 161st Street (approximately 500 feet West of the intersection).

Design Engineering Services shall include:

- 1) Preliminary Design
 - a) Examine preliminary plans for the proposed roadway project and conduct field investigations to determine and refine the proposed route for the new water main and to develop a plan for abandoning the existing main.
 - b) Discuss water distribution master plans with the OWNER to determine what future capacities should be considered in the design.
 - c) Incorporate available utility and drainage information into the water main plans, including the location and depth of existing and proposed facilities.
 - d) Prepare preliminary water main design based on OWNER's master plan and specifications, and on the field check. Preliminary design shall address:
 - i) Conflicts with proposed storm sewers and changes to road grade and alignment.
 - ii) Clearance and separation from storm and sanitary sewers in conformance with IDEM requirements.
 - iii) Pipes sizes for all new or relocated water mains.

- iv) Conformance with IDEM requirements for the Notice of Intent (NOI) process.
 - e) Perform quality review of preliminary design and make necessary revisions.
 - f) Submit Preliminary Design to OWNER, review with OWNER, conduct field check with OWNER, and receive input from OWNER to be incorporated into Final Design.
- 2) Final Design
- a) Prepare final design based on field check and input from OWNER, incorporating specific details required by the OWNER.
 - b) Prepare final specifications for water main design incorporating OWNER's standard specifications and applicable special conditions.
 - c) Perform quality review final design and make necessary revisions.
 - d) Present final design as construction drawings shown to a suitable plans scale, and shall include:
 - i) All water facilities normally associated with a complete water distribution system (i.e., mains, valves, hydrants, restrained pipe length requirements, service connection).
 - ii) Plan and profile for entire length of water main to be relocated and/or installed.
 - iii) Cross-sections of road and stream crossings where necessary.
 - e) Prepare and submit IDEM NOI or make application for Alternative Design Permit Approval (if required).
 - f) Submit one (1) set of plans, specifications, and estimate at Final Plans for OWNER's review.

D. PROJECT DELIVERABLES

The following deliverables are anticipated for this project:

1. The submittals/deliverables required for the design activities will be as follows (all plans black and white unless otherwise noted):
 - a. Preliminary Plans – two (2) full-size (24"x36") plan set, four (4) half-size (11"x17") plan sets and one (1) preliminary cost estimate provided to the CLIENT; five (5) full-size (24"x36") plan sets provided to Utility Companies
 - b. Public Information Meeting Exhibits – twelve (12) full-size (24"x36") color plan view exhibits and twelve (12) half-size (11" x 17") color plan view exhibits
 - c. Utility Coordination-five (5) full-size (24"x36") plan sets
 - d. Final Plans –four (4) full-size (24"x36") plan sets, one (1) quantity and design calculation binder, one (1) Specifications document and one (1) final cost estimate
 - e. The Consultant shall submit one (1) CD with electronic files of the project in PDF and AutoCAD 2008 format to the OWNER at the Final Plan Submittal.

Reference Exhibit 1 for the approximate number of plan sheets required for Roadway Design Project.

E. COORDINATION ACTIVITIES

The following coordination activities are anticipated for the project:

1. Nine (9) client meetings.
2. Four (4) Stakeholder meetings.
3. One (1) public information meeting.
4. Three (3) Hamilton County Surveyor Office meetings.

F. PERMITTING

1. CONSULTANT will prepare the following permitting applications for the CLIENT's use and submit on behalf of the CLIENT. CONSULTANT will address all comments and gain agency approvals.
 - a. IDEM Rule 5 Storm water Runoff permit. Submittal to Hamilton County Soil and Water Conservation District is required.
 - b. Hamilton County Surveyor's Office Drainage Permit

G. UTILITY COORDINATION

1. CONSULTANT will provide utility coordination services within the project limits; however, utility relocation design is not included and is expected to be completed by the utilities impacted, if required.

III. BIDDING SERVICES

A. BIDDING SERVICES

The CONSULTANT will provide bidding assistance for one (1) construction contract letting. The elements associated with this task are as follows:

1. Prepare bid advertisement for the CLIENT to publish.
2. Print and distribute plans and specifications (12 copies) and track plan holders.
3. Receive and respond to contractor inquiries regarding bidding documents.
4. Issue addenda to Bid Documents
5. Conduct one (1) pre-bid meeting
 - a. Attend pre-bid meeting
 - b. Prepare and distribute addenda and meeting minutes.
6. Prepare bid recommendation
 - a. Receive and review bids for responsiveness.
 - b. Prepare bid tabulation and make recommendation to the CLIENT regarding award of construction contract.
7. Attend bid opening, and contract award meeting.
8. Conduct one (1) pre-construction meeting
 - a. Attend pre-construction meeting
 - b. Prepare and distribute addenda and meeting minutes.

IV. RIGHT OF WAY SERVICES

A. RIGHT OF WAY ENGINEERING SERVICES

Potentially five (5) parcels will be acquired by the Owner at the intersection of 161st Street and Carey Road. Fee shall be defined as a per parcel basis.

All work will be performed according to the current INDOT Division of Land Acquisition Right-of-Way Engineering Manual and all other applicable regulations or laws.

Right of way Engineering includes:

1. Title Work Update
2. Title and Encumbrances reports
3. Updated and calculated Existing Property Lines
4. Legal descriptions
5. Individual plats for each parcel
6. Transfer documents
7. Final right of way plans
8. Right of way stakeout
9. Appraisal Problem Analysis

B. Right of way Supervision, Appraisal Services & Buying Services

Once the Land Plats and Legal Descriptions are developed from the Updated Title Search and Title and Encumbrances reports using the updated existing property lines, the Appraisal process can begin. Appraisal reports are unknown at this time. CONSULTANT shall provide fee structure for each appraisal report to cover each scenario.

Right of way Stakeout and Buying represent the final step in the land acquisition process. Stakeout is required so that the buying agent can illustrate to the landowner the affect that the project will have on the parcel. Appropriate Transfer Documents will then be drawn up to facilitate the transfer of land between the individual landowner and the Owner.

Right of way Supervision, Appraisal Services and Buying Services include:

1. Appraisal (market estimate, long form, short form or value finding)
2. Review Appraisal (when appropriate, five (5) parcels required)
3. Buying
4. Coordination between Engineer, Owner and Sub-consultants
5. Supervision of project progress and project team members

When efforts to acquire a parcel have failed, it may be necessary to file a condemnation suit. Neither condemnation procedures nor any court appearances are included in this scope of work.

V. CONSTRUCTION ENGINEERING AND INSPECTION

CONSULTANT shall provide construction engineering services for the project described above. Fee shall be estimated due to the full construction project is unknown at this time. Fee shall be for budgetary purposes. Services listed below will be part of a supplemental agreement if desired by the CITY. Said construction engineering services shall include the following:

1. Provide project representative services in observing the performance of the work of the construction contractor.
2. Project representative time is based upon providing one half-time project over the period of the construction which is estimated to be 90 days. Additional site visit(s), if found necessary, may be needed and hours of the project representative time increased or decreased based on the construction schedule and construction activities and as approved by the Owner.
3. The Duties and Responsibilities and the Limitations on the Authority of the Project Representative is set forth as described by the following:

3A. GENERAL

1. The Project Representative is the Engineer's Agent and shall act under the supervision and direction of the Engineer. He shall confer with the Engineer regarding his actions and shall communicate directly with the Owner.
2. Due to the part-time nature of these services, the Engineer and its Agent can only verify and document activities during periods present on the job site.

3B. DUTIES AND RESPONSIBILITIES

The Project Representative shall:

1. Schedule: Review the progress schedule prepared by the Contractor for compliance with the contract and give written advice to the Owner concerning its acceptability.
2. Conferences: A. Attend pre-construction conferences.
B. Arrange a schedule of progress meetings.
C. Document and circulate copies of records of the meetings.
3. Liaison:
 - a. Serve as the Owner's liaison with the Contractor working principally through the Contractor's superintendent. Alert the Contractor, through his superintendent, to the hazards involved in accepting and acting upon instructions from the Owner or others, except such instructions transmitted through the Engineer.
 - b. Cooperate with the Contractor in his dealings with the various local agencies having jurisdiction over the Project in order to complete service connections to public utilities and facilities.
 - c. Assist the Engineer in obtaining from the Owner additional details or information, when required, at the job site for proper execution of the work.
4. Approvals: When required, obtain from the Contractor a list of his proposed suppliers and subcontractors.
5. Samples: Obtain field samples of materials delivered to the site which are required to be furnished, and keep record of actions taken by Engineer.
6. Shop Drawings:
 - a. Receive, review and approve shop drawings and other submissions from the Contractor; record data received, maintain a file of the drawings and submissions, and check construction for compliance with them.
 - b. Alert the Contractor's superintendent when he observes materials or equipment being installed before approval of shop drawings or samples, where such are required, and advise the Owner when he believes it is necessary to disapprove work as failing to conform to the Contract Documents.
7. Review of Work, Inspections, and Tests:
 - a. Conduct on-site observations of the work in progress as a basis for determining that the Project is proceeding in accordance with the Contract Documents, and report to the Owner whenever he believes that any work should be rejected or specially tested, or that the work should be stopped to so that the completed Project will comply with the requirements of the Contract Documents.
 - b. Verify that tests, including equipment and systems start-up, which are required by the Contract Documents are conducted and that the Contractor maintains adequate records thereof; observe, record, and report to the Engineer appropriate details relative to the test procedures and start-ups.
 - c. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the outcome of these inspections, and report to the Engineer.
8. Interpretations of Contract Documents: Interpret the Contract Documents and transmit, in writing, interpretations to the Contractor.
9. Modifications: Consider and evaluate Contractor's suggestions for modifications in drawings or specifications and report them with recommendations to the Owner.
10. Records:
 - a. Maintain at the job site orderly files for correspondence, reports of job conferences, shop drawings, and other submissions, reproductions of original Contract Documents including all addenda, change orders, field orders, and additional drawings issued subsequent to the award of the

contract, the Engineer's interpretations of the Contract Documents, progress reports, and other Project related documents.

- b. Keep a diary or log book, recording hours on the job site, weather conditions in general, and specific observations in more detail as in the case of observing test procedures.
 - c. Record names, addresses, and telephone numbers of all Contractors, subcontractors, and major material suppliers.
 - d. Maintain a set of drawings on which authorized changes are noted and deliver to the Engineer at the completion of the Project.
11. Reports:
- a. Furnish the Owner and Engineer periodic reports, as required, of progress of the Project and the Contractor's compliance with approved progress schedule.
 - b. Advise the Owner in advance of scheduled major tests, inspections, or start of important phases of the Project.
12. Payment Requisitions: Review applications for payment with the Contractor for compliance with the established procedure for their submission and forward them with recommendations to the Owner, noting particularly their relation to the work completed and materials and equipment delivered at the site.
13. Guarantees, Certificates, Maintenance and Operation Manuals: During the course of the work, assemble Guarantees, Certificates, Maintenance and Operation Manuals, and other required data to be furnished by the Contractor; and upon acceptance of the project, deliver this material to the Owner.
14. Completion:
- a. Prior to inspection for substantial completion, submit to the Contractor a list of observed items requiring correction.
 - b. Conduct final inspection in the company of the Owner and prepare a final list of items to be corrected.
 - c. Verify that all items on final list have been corrected and make recommendations to the Owner concerning acceptance.
 - d. Final Project Documentation: All project documents described above.

3C. LIMITATIONS OF AUTHORITY

Except upon written instructions of the Engineer, the Resident Project Representative:

1. shall not authorize any deviation from the Contract Documents
2. shall not undertake any of the responsibilities of the Contractor, the subcontractors, or the Contractor's superintendent;
3. shall not expedite the work for the Contractor;
4. shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences, or procedures of construction, unless such is specifically called for in the Contract Documents.

ADDITIONAL SERVICES THAT CAN BE PROVIDED BY CONSULTANT AS A PART OF A SUPPLEMENTAL AGREEMENT, IF DESIRED BY THE CITY.

- A. *Utility Relocation Design (excluding water relocation) – Including but not limited to Sanitary Sewers, Force Mains, and Electrical Pole Layout.*
- B. *Geotechnical Services- Including but not limited to the tasks as follows:*
 - a. *Soil Borings, Pavement Cores and CBR tests for all roadways.*
 - b. *Laboratory Analysis*
 - c. *Geotechnical Report*
- C. Physical location of existing facilities (e.g. potholing, GPR, or other subsurface utility engineering).
- D. Environmental determinations, delineations, mitigation designs, and permitting beyond those permits listed in Section IIF